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ABSTRACT

The influence of age, sex, representational detail of objects (prototypicality) and adult play suggestions on children's progression of pretend behaviors was studied. A checklist was developed and utilized for coding the responses of 20 children (10 males, 10 females), to objects judged to be high and low prototypical by 12 adults. Children ranged in age 20 to 33 months; mean age was 26.75 months. All children were Anglo and middle socioeconomic status. Presentation of the objects to each child involved four phases: (1) high prototypical objects without adult play suggestions; (2) high prototypical objects with adult play suggestions; (3) low prototypical objects without adult play suggestions; and (4) low prototypical objects with adult play suggestions. All four phases of the procedure for each child were recorded on videotape and coded by three raters trained to use the checklist. Significant differences in children's response frequency were found for age and play suggestions and between younger and older children's demonstrations of responses within the upper levels of the checklist. Results indicated that both age and the use of adult play suggestions influence children's responsiveness to high and low prototypical objects and, consequently, are necessary considerations in attempting to delineate the progression of pretend in late infancy. (Author/MP)

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Symbolic Modes of Activity in Two-Year-Old Children

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Introduction

Most cognitive developmentalists assume, with Piaget, that the period of "true" thinking or symbolic representation first emerges within the transition from sensorimotor to preoperational thought. There have been no theoretically powerful explanations of development during this period (Watson & Fisher, 1977). Explanation of the nature of symbolic representation and of the more specific pretend behaviors revealed by the demonstration of internal representations with objects would seem crucial for understanding this yet vague area of the very young child's development.

Recent studies have shown that children's pretend behaviors change with age and are also affected by adult modeling, the adult's use of play suggestions, the child's gender, and by object prototypicality or the object's representational detail (Lowe, 1975; Fein & Robertson, 1974; and Fein, 1975). Some investigators have measured pretending through coding the duration of frequency of representational behaviors while other investigators have attempted to analyze the levels that describe the child's progression in symbolic play (Chart I: Lowe, 1975; Fenson, et al., 1976; Nicolich, 1977; and Watson & Fisher, 1977).

The primary purpose of the present study was to determine if age, object prototypicality, adult play suggestions, sex, or interactions among the variables affect the child's progression of pretend behaviors. A secondary purpose of the study was to develop and utilize a checklist for delineation of the progression of symbolic play. Such a measure that relies on the influence of the child's age and sex, prototypicality of

Chart I

Descriptions of Symbolic Modes of Activity

Lowe (1975)	Fenson et al. (1976)	Nicolich (1977)	Watson & Fisher (1977)
	Banging - hits two objects together.		
Differentiates between action patterns compatible with each object. Fits together action and object appropriately.	Simple relational - non-appropriate associations made with objects.	Presymbolic scheme - show understanding of object use or meaning by brief recognitory gestures.	
	Accommodative relational - appropriate associations made with objects. Groups similar objects.		
Puts action patterns in sequence to form large coherent wholes.			
Applies action patterns to self.	Symbolic acts-eats drinks, pours using objects.	Autosymbolic scheme - pretends at self related activities.	Self as agent - puts head on pillow to pretend to go to sleep.
Applies action patterns to others or replicas of others.		Single scheme symbolic games - extends symbolism beyond own actions.	Passive other agent - puts a doll on a pillow to pretend that it goes to sleep.

Lowe (1975)	Fenson et al. (1976)	Nicolich (1977)	Watson & Fisher (1977)
Attributes to others the ability to act. Invents absent but appropriate objects or substances to complete action patterns.		Combinational symbolic games - schemes all related to each other.	Passive substitute agent puts a block on a pillow to pretend that it goes to sleep. Active other agent - has the doll lie down on the pillow and go to sleep.
Transform objects in action sequences.	Sequential acts - engages in variations on a theme.	Planned symbolic games - indicates verbally or nonverbally that pretend acts are planned before being executed.	

objects, and on adult play suggestions would provide a more comprehensive understanding of the progression of symbolic play than investigators have previously noted.

Method

Subjects. Twenty children, ten males, ten females, in private nurseries were observed responding to objects twelve adults rated as having high and low prototypical properties. All children were Anglo and middle SES. Children ranged in age from 20 to 33 months, mean age 26.75 months, and divided into two age groups: 10 children, 5 males, 5 females between 20 and 26 months; 10 children, 5 males, 5 females in the older age group from 27 to 33 months. The age range within each group was six months.

Instrument. In order to develop the checklist and to establish its reliability, eleven 20 to 20 month old children, four females and seven males were observed responding to a set of high prototypical (HP) objects and to a set of low prototypical (LP) objects. The videotapes were reviewed three times for tabulation of response frequency of children's scores according to categories described by the three studies: Lowe, 1975; Nicolich, 1977; and Watson & Fisher, 1977 (Table 1) and a fourth time for additional observational data.

Objects. To test for the association of a low prototypical object, adults were asked to pair the high prototypical objects with their low prototypical counterparts. All high-low pairs were matched appropriately by at least 92% of the adults on each trial. To determine whether or not adults' ratings of the objects would differ as a function of prototypicality, adults were asked to give each object a score ranging from 1-10 based on

Table I

Response Frequency by Age Group and Object Type

	Months			
	18-24		24-30	
	Mean Frequency			
	high pro	low pro	high pro	low pro
Lowe (1975) *				
Differentiation action patterns	7.7	1.7	1.7	5.3
Combination functional relation	3.3	0.0	0.7	0.7
Sequential action patterns	0.3	0.0	4.3	0.0
Self applied action patterns	2.0	0.0	0.0	0.7
Other applied action patterns	9.0	1.0	15.3	8.7
Invents absent objects	0.3	0.0	0.7	0.3
Transforms objects in action sequences	0.0	0.0	1.7	0.7
Nicolich (1977) *				
Presymbolic	17.0	7.7	2.7	14.0
Autosymbolic	3.0	0.0	0.0	0.7
Single scheme symbolic	5.0	0.7	7.6	4.7
Combinational symbolic	4.0	0.0	12.3	2.7
Planned symbolic	0.0	0.0	1.0	0.0

Watson & Fisher (1977) *				
Self as agent	4.7	0.0	0.0	0.7
Passive other agent	9.0	1.0	15.3	6.3
Passive substitute agent	0.0	0.0	0.0	2.7
Active other agent	0.0	0.0	0.3	0.0

their evaluation of the object's prototypicality. Comparison of the twelve adults' ratings of the high prototypical and low prototypical objects produced a significant difference ($t = 3.49$, $p < .01$). Adults were asked to rank object pairs to determine whether or not pairs would be ranked similarly by the adults according to the degree of prototypicality of object pairs. The Kendall Coefficient of Concordance (W) indicated that the twelve adults were in close agreement ($W = .747$, $p < .01$).

Procedure. The investigator brought the child to the testing room from his or her own classroom within the nursery. The child was instructed to sit on the floor by the high prototypical objects; the investigator sat to the child's left; the videotaper and equipment was hidden from the child's view.

Presentation of the objects to each child involved four phases: 1) all high prototypical objects without adult play suggestions; 2) all high prototypical objects with adult play suggestions; 3) all low prototypical objects without adult play suggestions; and 4) all low prototypical objects with adult play suggestions. Play suggestions were introduced to the child in the following order: 1) "Baby is sleepy." "Put the baby to bed." "Nighty-night baby."; 2) "Baby is thirsty." "Give baby something to drink."; 3) "Baby is cold." "Make baby warm."; 4) "Baby's hair needs combing." "Comb baby's hair."; 5) "Baby wants to go for a ride." "Bye-bye, baby." The child was not coaxed into following the investigator's requests and the investigator did not demonstrate or model the suggested play theme.

Coding of data. Videotape. All four phases of the procedure

for each child was recorded on videotape. Videotape footage was divided into four sections for observer rating:

1) .5 minutes = 17 feet without play suggestions with HP objects
2) 1 minute = 33 feet with play suggestions with HP objects
3) .5 minutes = 17 feet without play suggestions with LP objects
4) 1 minute = 33 feet with play suggestions with LP objects

Raters. The videotapes were coded by three raters trained to use the checklist. The raters were instructed to mark all individual responses made by the child (for example: child may respond to I. A., B.; II. A.; and IV. C.). But the raters were instructed to mark the response only once for the entire designated time segment. Each rater viewed four segments of tape for each child and used two checklists: one checklist was used for coding response frequency to HP and LP objects when adult play suggestions were used (Appendix A). The other checklist was used for coding response frequency to HP and LP objects when adult play suggestions were not given (Appendix B). With one exception all correlation coefficients computed among the three raters exceeded .8.

Results

Significant main effects were found for age ($F = 8.85$, $p < .01$) and play suggestions ($F = 13.32$, $p < .01$) when scores were analyzed in a 2 (age) by 2 (sex) by 2 (objects) by 2 (play suggestions) repeated measures analysis of variance design (Table 2). Higher scores were found for older children (mean = 24.9) than for younger children (mean = 20.4) and when play suggestions were used (mean = 11.25) than when they were not used (mean = 9.00). Young and old children's

Table 2

Analysis of Variance of Children's Behavioral Responses

Source	df	MS	F
Age	1	25.32	8.85 *
Sex	1	.62	1.00
Age x Sex	1	1.00	1.00
Subjects/Age x Sex	16	2.86	
Objects	1	.02	1.00
Play suggestions	1	15.18	13.32 *
Age x Objects	1	.10	1.00
Age x Play suggestions	1	1.00	1.00
Sex x Object	1	.60	1.00
Sex x Play suggestions	1	.30	1.00
Object x Play suggestions	1	.10	1.00
Age x Sex x Object	1	.33	1.00
Age x Sex x Play suggestions	1	1.03	1.00
Age x Object x Play suggestions	1	.33	1.00
Sex x Object x Play suggestions	1	.63	1.00
Age x Sex x Object x Play suggestions	1	3.59	1.00
Objects x Ss/age x Sex	16	1.61	
Play suggestions x Ss/age x Sex	16	1.14	
Objects x Play suggestions x Ss/age x Sex	16	1.44	
TOTAL	79		

* $p < .01$

response frequency to objects is juxtaposed in Figure 1. The Fisher exact probability one-tailed test revealed significant differences between young and old children's demonstration of responses to categories of the checklist reflecting symbolic acts (IV, V, $p < .05$) but not for categories reflecting presymbolic acts (I, II, and III), (Table 3).

Discussion

Age. Children from 27-33 months demonstrated greater responsiveness to both high and low prototypical objects than did younger children 20-26 months old. These results support Fein and Robertson's (Note 2) finding that older children pretend more than younger children.

The findings of the present study noted a change in children's responsiveness to the categories of the checklist. As age increased children began to respond within the higher level categories (Category IV and V). Children within the older age group demonstrated externally their internal representation (Piaget, 1962).

Prototypicality. Few researchers (Lowe, 1974; Fenson et al., 1976; and Nicolich, 1977) have considered the prototypicality of objects in attempting to delineate children's pretend behaviors. Independent ratings by twelve adults clearly differentiated the high and low prototypicality of the objects used in this study. However, children did not demonstrate differentiated responses to high and low prototypical objects. Perhaps the objects used in the present study were too similar in representational detail to elicit differentiated responses from children. The issue is raised concerning the appropriateness of using adult ratings as the sole basis for determination of object prototypicality. Research based on this

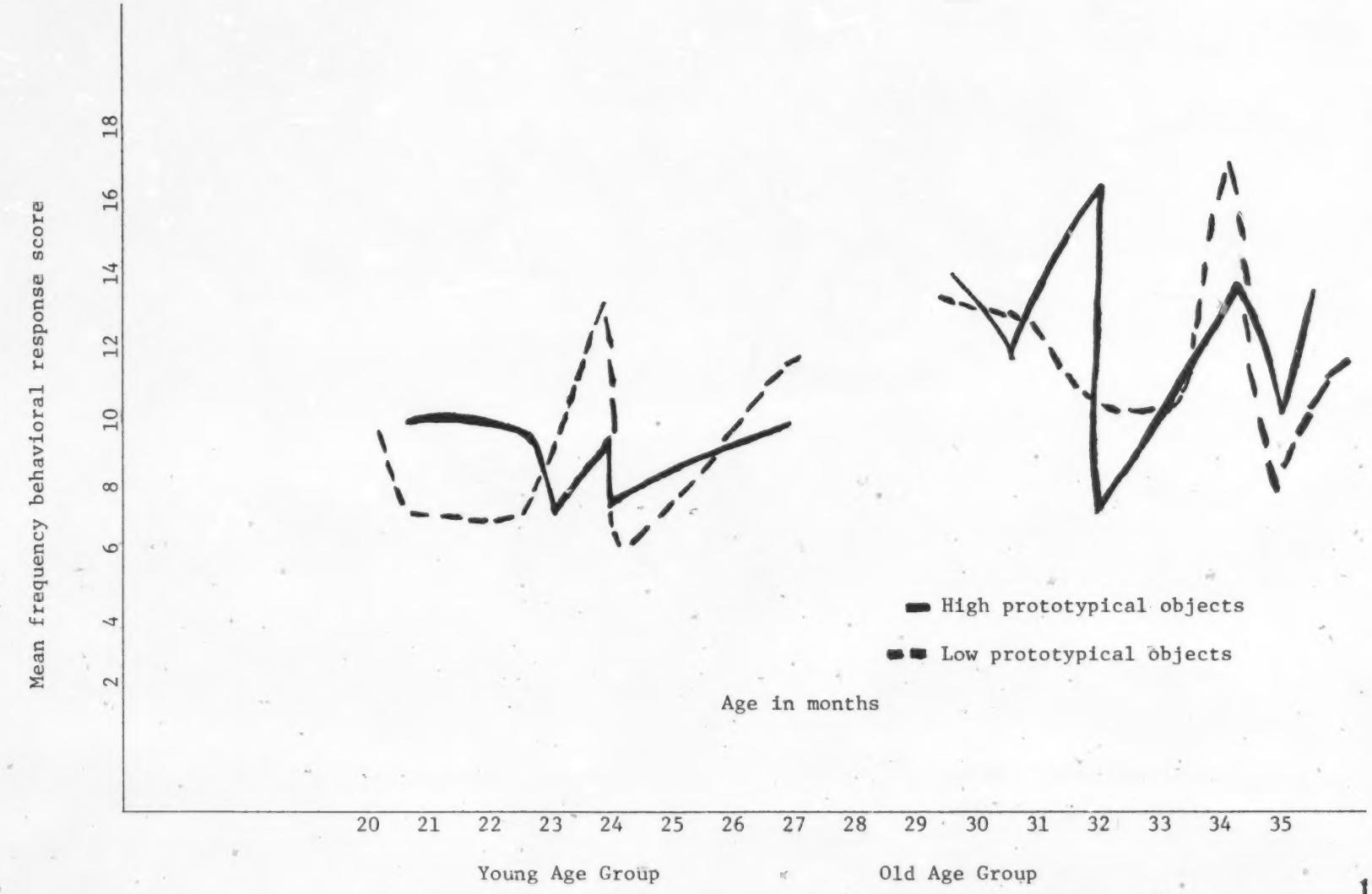

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Figure 1. Comparison of Young and Old Children's Response Frequency to High and Low Prototypical Objects.

Table 3

Young and Old Children's Response Frequency Grouped by Category

Category	Young Children	Old Children
I		
Demonstrated	10	10
Not demonstrated	0	0
II		
Demonstrated	9	10
Not demonstrated	1	1
III		
Demonstrated	5	6
Not demonstrated	5	4
IV *		
Demonstrated	5	9
Not demonstrated	5	1
V *		
Demonstrated	0	4
Not demonstrated	10	6

* $p < .05$

type of rating relies on "adult" representations rather than "child" representations.

Adult play suggestions. Children demonstrated greater responsiveness to high and low prototypical objects when adult play suggestions were used. Fein (1975) found that adult modeling did not change children's performance in substitution conditions while Watson & Fisher (1977) found that the adult modeling technique successfully elicited pretending. Comparisons with the present study are difficult to make. Fein (1975) and Watson & Fisher (1977) both used a "modeling" technique and, therefore, did not use suggested play themes as were used in present study. Watson & Fisher (1977) seemed to be discussing the child's early pretending dependent on external stimulation while Fein (1975) and the present study were concerned with the child's development of representative space in the cognitive map (Piaget, 1962). Children with this attainment are influenced by the "present adult, " but are also influenced by other sources - sources existing in their own cognitive map. Unlike the child's earlier pretending, the child's pretending is now based on his or her own illumination of representation.

Sex. Unlike Fein and Robertson's (1974) study, sex did not seem to be a powerful factor in the present study. Perhaps the objects used with the sample of children in this study did not elicit sex role patterned responses as were suggested in Fein and Robertson's (1974) study.

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Appendix A

Child's name_____

Birthdate_____

Rater's name_____

Category Cluster Checklist
for Coding with Play Suggestions

Frequency to HP Objects			Behavioral Responses	Frequency to LP Objects
_____	I.	A.	Looks at objects.	_____
_____		B.	Touches objects.	_____
_____		C.	Looks at adult.	_____
_____	II.	A.	Combination of objects (may be haphazard - stacking, or intentional - fitting box together.	_____
		B.	Shows objects to adult.	_____
_____	III.	A.	Applies "action" to self or adult (one way).	_____
_____		B.	Describes "own" actions.	_____
_____	IV.	A.	Applies "action" to self or adult and to objects (one way).	_____
		B.	Describes actions of self and/or others.	_____
_____	V.	A.	Action patterns of application of "action" to self, adult, and objects are sequential.	_____
_____		B.	Describes actions - descriptions use concepts (warm, cold, soft, hard, etc.)	_____

Appendix B

Child's name_____

Birthdate_____

Rater's name_____

Category Cluster Checklist
for Coding without Play Suggestions

Frequency to HP Objects			Behavioral Responses	Frequency to LP Objects
_____	I.	A.	Looks at object.	_____
_____		B.	Touches objects.	_____
_____		C.	Looks at adult.	_____
_____	II.	A.	Combination of objects (may be haphazard - stacking, or intentional fitting box together).	_____
_____		B.	Shows objects to adult.	_____
_____	III.	A.	Applies "action" to self or adult (one way).	_____
_____		B.	Describes "own" actions.	_____
_____	IV.	A.	Applies "action" to self or adult and to objects (one way).	_____
_____		B.	Describes actions of self and/or others.	_____
_____	V.	A.	Action patterns of application of "action" to self, adult, and objects are sequential.	_____
_____		B.	Describes actions - descriptions use concepts (warm, cold, soft, hard, etc.).	_____